

U. S. Department of Commerce

Maurice H. Stans

Secretary

National Bureau of Standards
A. V. Astin, Director

Certificate of Analysis

STANDARD REFERENCE MATERIAL 36b Chromium-Molybdenum Steel

ANALYST	C	Mn	P	S	Si	Cu	Ni	Cr	V	Mo
	Combustion-Gravimetric	Persulfate-Arsenite	Photometric	Combustion-Titration	Perchloric acid dehydration	Photometric	Photometric			Photometric
1	0.114	{0.403 .402 ^a }	0.007 ^b	0.020 ^c	0.257 ^d	{0.180 ^e .183 ^f }	0.192	2.18 ^g	{0.004 ^h .003 ^a }	0.995
2	.115	.407 ⁱ	.006 ^j	.018	.256	.175 ^k	.203 ^l	2.18 ^g	.005 ^m	1.00
3	.113	.40	.006 ⁿ	.019	.254	.173	.206 ^l	2.19 ^g	.006 ^m	{.995 ^o .993 ^p }
4	.117	.404	.010 ^j	.018	.261 ^d	.184	.213 ^p	2.15 ^q	.005	.995
5	.112	.407 ^r	.008	.019	.262	.179 ^s	.213 ^l	2.19 ^q	.003 ^m	.996
Average	0.114	0.404	0.007	0.019	0.258	0.179	0.203	2.18	0.004	0.996

^a Neutron activation analysis.

^b Molybdenum-blue photometric method. See J. Res. NBS 26, No. 5, 405 (1941) RP1386.

^c 1-g sample burned in oxygen at 1450 °C and sulfur dioxide absorbed in starch-iodide solution. Iodine liberated from iodide by titration, during the combustion, with standard KIO₃ solution.

^d Double dehydration.

^e Isotopic dilution method.

^f Atomic absorption spectrometry.

^g Persulfate oxidation-potentiometric titration with ferrous ammonium sulfate.

^h Benzoylphenylhydroxylamine photometric method.

ⁱ Bismuthate oxidation-potentiometric titration with HgNO₃.

^j Alkali molybdate method.

^k Neocuproine photometric method.

^l Dimethylglyoxime precipitate titrated with cyanide.

^m Nitric acid oxidation-potentiometric titration with standard ferrous ammonium sulfate solution.

ⁿ Color complex extracted with isobutyl alcohol.

^o Alpha benzoinoxime-MoO₃ method.

^p Electrolytic method.

^q Persulfate oxidation-Fe (NH₄)₂(SO₄)₂-KMnO₄ titration.

^r Persulfate photometric method after removal of chromium as CrO₂Cl₂.

^s Diethyldithiocarbamate photometric method.

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The material for this standard was provided by Lukens Steel Company, Coatesville, Pennsylvania.

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